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MERCURY IN SCHOOLS

How to Implement a Mercury Elimination Program

Pollution Prevention (P2) is defined as the use of processes, practices, materials, products, substances or energy in a manner that prevents or minimizes the creation of pollutants and waste. P2 reduces the overall risk to the environment and or human health; not generating waste in the first place, it reduces pollution at the source.

Waste Minimization is a broader term that includes recycling and other means to reduce the amount of waste which must be treated / disposed of. It is any practice that reduces the amount of hazardous substances, pollutants, or contaminants entering the waste stream. Creating and practicing P2/Waste Minimization strategies help conserve the earth's natural resources, reduce health risks to humans and provide cost savings to the waste generator while preserving the environment.

Mercury, whose chemical symbol is Hg, is a common substance found in schools. Mercury is a shiny, silver colored and odorless metal, which is toxic in its many forms. Mercury is a toxic pollutant and is listed as one of 12 priority chemicals by the Persistent, Bioaccumulative, and Toxic (PBT) Chemical Program of the Environmental Protection Agency (EPA). When elemental mercury is released it breaks up into tiny beads that can be inhaled or ingested causing shortness of breath, nausea, vomiting, diarrhea and even death. It is especially harmful to the brain and nervous system of children. Although removing mercury from schools can be costly and time consuming, the cost of cleaning up mercury spills can be even greater.

Mercury spills have been reported by many schools across the United States, including those in San Diego. The costs of cleaning up a mercury spill will vary by the size of the spill and the degree of exposure to property and people. Clean up costs can range from as little as $1000 to as much as $200,000. In schools, mercury can be found in a number of areas. Some of the most common places are science classrooms, laboratories, nurse's offices, and electrical systems.

Eliminating mercury from schools is a pollution prevention measure as well as a waste and risk minimization strategy that can greatly benefit a school. Mercury elimination prevents the cost of a spill clean up, minimizes the possibility of contamination and exposure to environment, and reduces harm to the health of students and school personnel.

Most desirable

NO WASTE

RECOVER / REUSE ON-SITE

RECYCLE OFF-SITE

TREAT WASTE TO REDUCE VOLUME

DISPOSE WASTE PROPERLY

Least desirable

If there is no mercury to spill, there is no waste to manage!

Your school may not be able to rid itself completely of all mercury; some mercury may still remain in thermostats, switches, relays, and fluorescent lights. In addition, mercury may show up in previously unknown sources or be brought into the school. For these reasons, it is important to adopt a mercury spill management plan that clearly outlines the necessary steps to properly respond in the event of a mercury spill. It is essential that schools have mercury spill kits in each room where mercury is used and that staff are trained to properly use them. Spill kits can be purchased from various lab and safety vendors.

ADDITIONAL MERCURY RESOURCES:

www.epa.gov/mercury/schools.htm www.mercuryinschools.uwex.edu/ www.p2pays.org/mercury/school.asp

HOW TO INITIATE A MERCURY CLEAN OUT IN YOUR SCHOOL

As with any other P2 programs, the first step is COMMITMENT. The school administration must be committed to make the program work and must get all personnel involved in the effort. Develop a team to implement the Mercury Clean-Out Plan. Team must include participants from different areas in the school, including science teachers, the school nurse, facilities personnel and students.

STEPS FOR MERCURY (Hg) CLEAN OUT PLAN

1. **Make a COMMITMENT!**
   - Top management must make the commitment and involve all personnel.
2. **Develop a team**
   - Include administrators, science teachers, school nurse, facilities personnel and students.
3. **Develop a plan and program costs**
   - Contact recyclers and / or hazardous waste haulers for bids, costs for different mercury items, storage / container requirements.
   - Check on the internet for possible grant opportunities.
   - Your resources will determine whether you can do a clean sweep or phase out over a period of time.

4. **Conduct an audit** – Thorough inspection of school for mercury, use chart below as tool
   BEFORE DIGGING THROUGH CABINETS HAVE A MERCURY SPILL KIT AVAILABLE AND TRAIN PERSONNEL ON HOW TO RESPOND TO SPILL
5. **Review Audit – Determine if mercury item is necessary.**
   - Is there a reasonable, less toxic or non-toxic alternative?
   - Evaluate which mercury items can go and make a list.
6. **Collect all upon unwanted mercury items and store properly in designated area.**
   - Store mercury items to prevent breakage; use vermiculite, packing peanuts, or any other suitable packing material. Do not over pack!
   - Remember to label all storage containers properly

7. **Schedule a hazardous waste hauler or mercury recycler to pick up and have items removed**
   - Save Receipt/Bill of Lading/Manifest!
8. **Continue and review plan yearly**

MERCURY (Hg) AUDIT:

Item	Amount	Location	Safe Substitute / Alternative
Mercury thermometers			Spirit-filled, digital, expansion, and aneroid thermometers
Mercury barometers			Liquid silicon gas barometer / Digital barometer
Other Mercury devices			Alternative non-mercury device www.informinc.org/
Mercury (II) oxide (Hg0)			Copper catalyst
Mercury (II) chloride (HgCl2)			Magnesium chloride / sulfuric acid
Other Mercury compounds			Change lab experiments to non-mercury www.mercury-k12.org/
Mercury Sphygmomanometer			Aneroid sphygmomanometer, semi-automated and automated devices
Fluorescent light bulbs			No known substitute
Mercury thermostats			Electronic thermostats
Other equipment with Mercury sensors			Alternative electronic equipment www.informinc.org/